

Please replace the paragraph appearing at page 11, lines 4-7, with the following:

a<sup>1</sup> Figure 2 shows a direct amino acid sequence comparison of the mannose lectin described by Gowda et al. (*J. Biol Chem* 269:18789-18793, 1994: SEQ ID NO:49 and SEQ ID NO:51) and the derived amino acid sequence of DI-FRIL, a representative, non-limiting FRIL family member of the invention (SEQ ID NO:50 and SEQ ID NO:52), encoded by a representative, non-limiting nucleic acid of the invention.

Please replace the paragraph appearing at page 11, lines 23-25, with the following:

a<sup>2</sup> Figure 9 is a map of a recombinant expression vector pGEX4T-1-DLA manufactured by ligating a wild-type cDNA clone in the *EcoRI/SalI* site of the *E. coli* expression vector pGEX4T-1 (insertion site as SEQ ID NO:53).

Please replace the paragraph appearing at page 11, lines 26-28, with the following:

a<sup>3</sup> Figure 10 is a map of a recombinant expression vector pGEX4T-1-DLA(D) manufactured by ligating a mutant cDNA clone in the *EcoRI/XhoI* site of the *E. coli* expression vector pGEX4T-1 (insertion site as SEQ ID NO:54).

Please replace the paragraph appearing at page 14, lines 23-26, with the following:

a<sup>4</sup> Figure 24B shows a direct amino acid sequence comparison of Pv-FRIL(SEQ ID NO:56), a representative, non-limiting FRIL family member of the invention, with DI-FRIL(SEQ ID NO:55), another representative, non-limiting FRIL family member of the invention, and the PHA lectin, PHA-E (SEQ ID NO:57).

Please replace the paragraph appearing at page 53, lines 8-12, with the following:

a<sup>5</sup> Based on the amino acid sequence published by Gowda et al., *J. Biol. Chem.* 269:18789-18793, 1994, two degenerate oligonucleotide primers were designed using *Phaseolus* codon usage (Devereux et al., *Nucleic Acids Res.* 12:387-394, 1984):

MLA AA(AG)TT(TC)GA(TC)CC(AT)AA(TC)CA(AG)GA(AG)GA (SEQ ID NO:11)

MLZ TT(AT)CC(AG)TT(TC)TGCCA(AG)TCCCA (SEQ ID NO:12).

Please replace the paragraph appearing at page 53, lines 19-23, with the following:

a<sup>4</sup> The 500 bp product obtained by PCR was cloned in the cloning vector, pCR2.1 (Invitrogen, Carlsbad, CA), and sequenced by sequenase dideoxy chain termination (United States Biochemicals) using the following primers:

GTACCGAGCTCGGAT (SEQ ID NO:13)

TCTAGATGCATGCTCGAG (SEQ ID NO:14).

Please replace the paragraph appearing at page 53, lines 26-28, with the following:

Based on the sequence of the DI-FRILa amplified product, a specific primer was prepared:

a<sup>7</sup> MLX GTTGGACGTCAATTCCGATGTG (SEQ ID NO:15).

Please replace the paragraph appearing at page 54, lines 1-3, with the following:

a<sup>8</sup> A degenerate primer corresponding to the first five amino acids of the sequence published by Gowda et al., *J. Biol. Chem.* 269:18789-18793, 1994 was also prepared:

MLI GC(TC)CA(AG)TC(TC)CT(TC)TC(TC)TT (SEQ ID NO:16).

Please replace the text appearing at page 54, lines 16-19, with the following:

AP GACCACGCGTATCGATGTCGAC (SEQ ID NO:17).

ag Nested PCR amplifications were performed using the AP anchor primer in combination with a specific primer having the following sequence:

MLB AAGTTAGACAGTGCAGGAAAC (SEQ ID NO:18).

Please replace the paragraph appearing at page 54, lines 24-27, with the following:

Q10 To obtain the full length cDNA clone, the anchor primer AP was used in combination with a specific primer corresponding to the first 5 amino acids encoded at the 5'-terminus:

MLII GCACAGTCATTGTCATTAG (SEQ ID NO:19).

Please replace the paragraph appearing at page 57, lines 6-13, with the following:

Q11 A comparative illustration of the derived DI-FRIL amino acid sequence with the reported amino acid sequence of the mannose lectin as determined by Gowda et al. (*J. Biol. Chem.* 269:18789-18793, 1994) is shown in Fig. 2. The single sequence derived for DI-FRIL protein comprises domains that correspond directly and with substantial homology to the  $\alpha$  subunit (SEQ ID NO:52) and  $\beta$  subunit (SEQ ID NO:50) of the protein described by Gowda et al., *supra*. When the  $\beta$  subunit of the Gowda et al. (*supra*) protein is assigned to the N-terminal domain and is followed linearly by the  $\alpha$  subunit, the arrangement of the polypeptides shows homology to other legume lectins.

Please replace the paragraph appearing at page 57, lines 21-25, with the following:

Q12 To establish functionality of homologs of the protein encoded by the DI-FRIL cDNA, a mutation was made in the DI-FRIL cDNA clone. The domains of the derived protein and the pea lectin that include the mutation site are shown below:

DI-FRIL . Y L N P D Y G . D P N Y I H I G I D V (SEQ ID NO:20)

Pea F Y . N A A W D P S N R D R H I G I D V (SEQ ID NO:21).

Please replace the paragraph appearing at page 58, lines 1-7, with the following:

Q13 To introduce the mutation, recombinant PCR was performed (see, *e.g.*, Higuchi, R., *PCR Protocols: A Guide to Methods and Applications*, Innis M.A., Gelfand D.H., Sninsky J.J., and White T.J., eds., Academic Press, San Diego, 1990). Two PCR reactions were carried out separately on the full length cDNA using two primers that contain the same mutation and produce two products with an overlapping region:

MutI CCATAATCGGGATCAAGATAGGTG (SEQ ID NO:25)

MutII CACCTATCTTGATCCCGATTATGG (SEQ ID NO:26).

Please replace the paragraph appearing at page 58, lines 8-13, with the following:

Q14 The primary PCR products were purified with the QIAquick PCR Purification kit (QIAGEN, Valencia, CA), according to the manufacturer's instructions. The overlapping primary products were then combined and amplified together in a single second reaction using flanking primers:

M1 Forw AACTCAGCCGCACAGTCATTGTCA (SEQ ID NO:27)

AP<sub>EcoRI</sub> GAATTCGACCACGCGTATCGATGTCGAC (SEQ ID NO:28).

Please replace the paragraph appearing at page 59, lines 7-10, with the following:

The following primers were used for amplification of the signal peptide sequence:

Q15  
Sigforw GAATTCATGGCTTCCTCCAAC (SEQ ID NO:29)  
Sigrev TGACTGTGCGGCTGAGTTTGCCTGGGTG (SEQ ID NO:30).

Please replace the paragraph appearing at page 59, lines 11-13, with the following:

Q16  
The primers M1Forw (SEQ ID NO:27) and APEcoRI (SEQ ID NO:28) used for amplification of the DI-FRIL cDNA described above, were again used to amplify the DI-FRIL cDNA.

Please replace the text appearing at page 74, lines 23-29, with the following:

Q17  
Throughout purification of Pv-FRIL a New Zealand White rabbit (HRP, Denver, PA) was immunized with crude PHA-LCM, boosted with increasingly purified samples containing Flt3 3T3 activity, and finally immunized with a peptide corresponding to Pv-FRIL (AQSLSF[N, C, S]FTKFDLD; SEQ ID NO:31), referred to as the AQS-peptide. Samples were glutaraldehyde conjugated to keyhole limpet hemocyanin (KLH, Sigma). The rabbit was immunized with KLH-AQS peptide-containing samples using either Complete Freund's Adjuvant (Sigma) or Hunter's Titermax (Vaxcel, Inc.,

Please replace the paragraph appearing at page 78, lines 3-9, with the following:

Q18 In each of three experiments, the sequence AQSLSFXTKDALD (SEQ ID NO:32) was obtained from a polypeptide of 18 kDa (where X is an unknown amino acid). For the material at the dye front (14 kDa and below) the aminoterminal sequence of TDSRVVAVEFDXFP (SEQ ID NO:33) was found twice. The amino terminus of a smooth muscle protein (SM22- $\alpha$ ) was found twice and the amino terminus of myoglobin identified once. Since the sequence starting with AQS was the only sequence identified in each experiment, this polypeptide was concluded to be responsible for Flt3 3T3 activity.

Please replace the paragraph appearing at page 79, lines 5-12, with the following:

Q19 Because PHA is derived from red kidney bean extract and because a FRIL family member, DI-FRIL, was isolated from another legume, namely *Dolichos lab lab*, mannose-binding lectins were isolated from red kidney bean (*Phaseolus vulgaris*) extract using standard methods, such as the procedure of Rudiger, H., *Isolation of Plant Lectins*, H.-J. Gabius and S. Gabius, eds., pp. 31-46, Berlin, 1993). The kidney bean mannose-binding lectin consisted of polypeptides with molecular weights of 18 kDa and 15 kDa, and the aminoterminals of these two polypeptides started with AQSLSFXTKFDPN (SEQ ID NO:34) and TDSRVVAVEFD (SEQ ID NO:35), respectively (where X is an unknown amino acid).

Please replace the text appearing at page 80, lines 15-18, with the following:

Q20

PVBeta1:	TTY ACY AAR TTY GAY YTN GA	(SEQ ID NO:36)
PVBeta2:	ATY TTY CAR GGW GAY GC	(SEQ ID NO:37)
PVAlfa1:	TTR ACR TCR ATW CCR ATR TG	(SEQ ID NO:38)
PVAlfa2:	TAR TTW GGR TCR ATR TTR GCR TT	(SEQ ID NO:39).

Please replace the text appearing at page 81, lines 21-22, with the following:

*A21*  
**PV3:** CAA TGT CTT ACA ACT CAC TAA G (SEQ ID NO:40)  
**PV4:** AGT GTG GGA AGA GTG TTA TTC (SEQ ID NO:41).

Please replace the text appearing at page 82, lines 4-5, with the following:

*A22*  
**SPV2:** ACC AAA GCT TTG GTT TTC AGA (SEQ ID NO:42)  
**SPV3:** TCT GAA AAC GTT TGA GTA GAG (SEQ ID NO:43).

Please replace the text appearing at page 82, lines 21-22, with the following:

*A23*  
**PVEcoRI** TAC ATG AAT TCG CTC AGT CAT TAT CTT TTA AC (SEQ ID NO:44)  
**APEcoRI:** GAA TTC GAC CAC GCG TAT CGA TGT CGAC (SEQ ID NO:28).

Please replace the paragraph appearing at page 84, lines 13-19, with the following:

*A24* The primers used for the two primary reactions are the following:  
Amplification of the Signal Peptide

**Sigforw BglII:** AGA TCT ATG GCT TCC TCC AAC (SEQ ID NO: 45)  
**Sigrew:** AAA GAT AAT GAC TGA GCG GCT GAG TTT GCG TG (SEQ ID NO: 46).

Amplification of the mannose lectin cDNA:

**SpMlforw:** CAC GCA AAC TCA GCC GCT CAG TCA TTA TCT TT (SEQ ID NO: 47)  
**APXhoI:** CTC GAG GAC CAC GCG TAT CGA TGT CGA (SEQ ID NO:48).